

### **REMARKS**

Claims 1, 2, 4, 6-16, 18, 20-25, 27-52, and 54-65 remain pending in the application. Claims 1, 4, 10-15, 18, 20, 24, 36, 37, 63, and 64 are amended. Claims 3, 5, 17, 19, 26, and 53 are cancelled. Claims 39-48 are withdrawn from consideration. Applicants respectfully request for allowance of claims 1, 2, 4, 6-16, 18, 20-25, 27-38, 49-52, and 54-65 based on following discussions.

#### **Rejections under 35 USC 112**

Claims 1-38 and 49-65 are rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is amended by replacing “the gas stream” with “the fluorocompound-containing gas stream.” Claim 15 is also amended by replacing “the gas stream” with “the fluorocompound-containing gas stream.” Thus, Applicants respectfully submit that claims 1 and 15, as amended, are now in compliance with 35 USC 112, second paragraph. Accordingly, Applicants respectfully request that rejections under 35 USC 112 against claims 2-14, 16-38, and 49-65 be withdrawn, due to their dependency on claim 1 or 15.

#### **Rejections under 35 USC 103**

Claims 1-4, 6-18, 20-33, 37-38, 49, 51-60, and 64-65 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,673,323 to Bhatnagar et al. (hereinafter referred to as “Bhatnagar”) in view of US Patent No. 7,220,396 to Aardahl et al. (hereinafter referred to as “Aardahl”). Applicants note that in the Office Action, the

patent number of Aardahl is provided as “7,230,396” but believe that it should have been “7,220,396.” Clarification is respectfully requested.

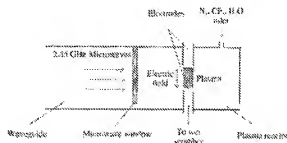
Claim 1, as amended, is directed to a method of treating a fluorocompound-containing gas stream, the method comprising: generating a plasma stream from a plasma source gas; injecting the plasma stream through an aperture into a chamber; conveying to the plasma stream a source of ions for contacting the plasma stream to form heated ions comprising ions selected from the group consisting of  $\text{OH}^-$  and  $\text{H}^+$ ; and conveying the fluorocompound-containing gas stream to the heated ions, wherein the step of generating the plasma stream from a plasma source gas further comprises generating an electric field between two electrodes of a plasma torch and conveying the plasma source gas between the electrodes to form the plasma stream, and wherein the aperture is formed in one of the electrodes. Note that the underlined languages are added to claim 1 by the current amendment.

Applicants respectfully submit that neither Bhatnager nor Aardahl teaches “injecting the plasma stream through an aperture into a chamber... wherein the aperture is formed in one of the electrodes.” Examiner acknowledges “[n]either Bhatnager et al nor Aardahl et al explicitly teaches that the step of injecting the plasma stream into the chamber further comprises injecting the plasma stream into the chamber through an aperture in one of the electrodes.” *See, the Office Action, page 8, lines 25-27.*

In making up the deficiency of Bhatnager and Aardahl, Examiner cites Radiou, “Studies of 2.45 GHz Microwave Induced Plasma Abatement of  $\text{CF}_4$ ,” *Environ. Sci. Technol.* 2003, 37, pp. 3985-3988, Fig. 2, p. 3986, right col. (hereinafter referred to as “Radiou”). Examiner asserts “Radiou teaches that a step of injecting a plasma stream

into the chamber may comprise injecting the plasma stream into the chamber through an aperture formed in one of the electrodes.” *See, the Office Action, page 9, lines 1-2.*

Applicants respectfully disagree with the assertion. As shown in Fig. 2 of Radiou, the microwave system includes a pair of opposed field-enhancing electrodes. Gas flows into the space between the electrodes at one end, and out of it at another end. There is no mentioning in Radiou that an aperture is formed in one of the electrodes, as the gas simply flows through the gap between the electrodes.



Moreover, Applicant respectfully contends that it would not have been obvious for a person skilled in art to modify Radiou by making an aperture in one of the electrodes. In Radiou, a microwave window is provided for preventing gas flow up to the waveguide. *See, page 3986, left col., lines 1-2.* It can be inferred that it is undesirable to Radiou for the gas to be in contact with the waveguide. If there were an aperture in one of the electrodes, the gas would have been more easily to reach the waveguide, which is an outcome Radiou seeks to avoid. In other words, Radiou teaches away from such modification.

As such, Applicants respectfully submit that claim 1 as amended is patentable over Bhatnagar in view of Aardahl and Radiou under 35 USC 103.

Independent claim 15, as amended, also includes the limitation “wherein the aperture is formed in one of the electrodes.” For the reasons discussed above,

Applicants respectfully submit that claim 1 is also patentable over Bhatnagar in view of Aardahl and Radiou under 35 USC 103.

Accordingly, claims 2, 4, 6-14, 16, 18, 20-25, 27-33, 37-38, 49, 51, 52, 54-60, and 64-65 that depend from claim 1 or 15 and include all the limitations recited therein are also patentable over Bhatnagar in view of Aardahl and Radiou under 35 USC 103.

Claims 3, 17, 26, and 53 are cancelled.

Claims 5 and 19 are rejected under 35 USC 103(a) as being unpatentable over Bhatnagar in view of Aardahl and Radiou. Claims 5 and 19 are cancelled. Thus, the rejections to claims 5 and 19 are moot.

Claims 34, 35, 61, and 62 are rejected under 35 USC 103(a) as being unpatentable over Bhatnagar in view of Aardahl and US Patent No. 6,395,144 to Yi et al. (hereinafter referred to as “Yi”).

Claims 34, 35, 61, and 62 depend from claim 1 or 15 and include all the limitations recited therein. For the reasons discussed above, Applicants respectfully submit that claims 34, 35, 61, and 62 are also patentable over Bhatnagar in view of Aardahl and Yi under 35 USC 103.

### **CONCLUSION**

Applicants have made an earnest attempt to place this application in an allowable form. In view of the foregoing remarks, it is respectfully submitted that the pending and elected claims are drawn to a novel subject matter, patentably distinguishable over the prior art of record. Examiner is therefore, respectfully requested to reconsider and withdraw the outstanding rejections.

Should Examiner deem that any further clarification is desirable, Examiner is invited to telephone the undersigned at the below listed telephone number.

It is not believed as this time that any additional fee is due. As a precaution, the Commissioner is hereby authorized to charge to Deposit Account No. 50-4244 any additional fee required by this submission.

Respectfully submitted,

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